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Ministry of Economic
Development

Manatū Ōhanga

Intellectual Property Office
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CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 31 January 2003 with an application for Letters Patent number 523967 made by SKOPE INDUSTRIES LIMITED.

Dated 2 March 2004.

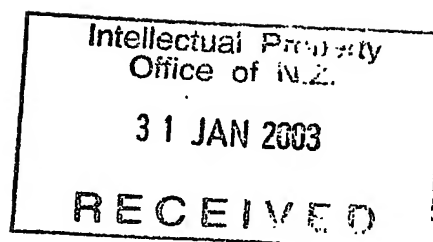
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Neville Harris
Commissioner of Patents, Trade Marks and Designs



523967



Patents Form No. 4

Patents Act 1953

PROVISIONAL SPECIFICATION

IMPROVED REFRIGERATED CABINET

We, Skope Industries Limited of P.O. Box 1091, Christchurch, New Zealand, a New Zealand company, do hereby declare this invention to be described in the following statement:

The present invention relates to an improvement in a refrigerated cabinet of the type in which cold air is circulated around the cabinet by a fan.

5 For efficient refrigerated storage of product within the cabinet, it is important that cold air from the refrigeration unit is circulated evenly throughout the cabinet. In known designs, the evaporator of the refrigeration unit is fitted with one or more fans, which are driven to circulate cold air from the vicinity of the refrigeration unit throughout the body of the cabinet. However, air naturally tends towards the path of least resistance, and if the shelves of the cabinet are heavily stacked with product, restricting the spaces between
10 adjacent shelves, air tends to move preferentially towards the bottom of the cabinet rather than between the shelves.

It is therefore an object of the present invention to provide a refrigerated cabinet in which the above described problem is overcome or at least ameliorated.

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The present invention provides a refrigerated cabinet which includes a fan assisted refrigeration unit and a duct in communication with said fan and extending substantially the full height of said cabinet, said duct being adapted to distribute cold air from said fan throughout said cabinet; wherein the cross sectional area of said duct is restricted at a
20 position remote from said fan; such that in use air in said duct is pressurised compared to the remainder of said cabinet.

By way of example only, a preferred embodiment of the present invention as applied to a refrigerated cabinet with a top mounted refrigeration unit will be described in detail, with
25 reference to the accompanying drawing, which shows a diagrammatic longitudinal section of the cabinet.

Referring to the drawing, a refrigerated cabinet 2 is of known type:- an insulated cabinet with a full height glazed door 3 and a top mounted refrigeration unit 4. The cabinet 2 is
30 mounted on castors 5. The interior of the cabinet is provided with racks or shelves 6 on which product 7 is displayed.

The refrigeration unit 4 is of conventional type, and fitted with an air circulation fan 8 powered by a fan motor 9 in known manner. On leaving the fan 8, the cold air (arrows

A) passes down a duct 10 formed down the back of the cabinet, and extending across the full width of the back of the cabinet.

5 To keep the product 7 chilled efficiently, it is important that the cold air is circulated evenly around the interior of the cabinet. However, in known designs of cabinet, the path of least resistance for the cold air is to pass directly down the duct 10 to the bottom of the cabinet; this is especially so when the cabinet contains a large volume of product and the space between adjacent shelves 6 is restricted. It will be appreciated that this leads to inefficient chilling of the product.

10 To overcome this problem, the width of the duct 10 is restricted by a flange 11 which extends across the full width of the back of the cabinet and leaves only a small space 12 between the outer end of the flange 11 and the rear wall 13 of the cabinet. The effect of this restriction is to make it more difficult for air to enter the bottom space 14 below the
15 lowest shelf in the cabinet and thus to pressurise the air in the duct. This pressurisation of the duct 10 forces air out through the slots 15 formed across the duct 10 immediately below each of the cabinet shelves 6, (as indicated by Arrows B) and through the smaller slots 15a positioned between the slots 15, and gives a greatly improved distribution of air throughout the whole length of the cabinet.

20 The invention has been illustrated with particular reference to a cabinet with a top mounted refrigeration unit, but it will be appreciated that the principle of the invention is equally applicable to a base mounted refrigeration unit. If used with a base mounted
25 refrigeration unit, the restricting flange 11 would of course be formed at the top of the duct 10.

